

COLORADO RIVER RECOVERY PROGRAM  
FY 2000 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER: 22i

I. Project Title: **Abundance Estimates for Colorado pikeminnow in the Middle Green River /Yampa River System**

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III. Project Summary:

This project will obtain an abundance (or population) estimate for Colorado pikeminnow *Ptychocheilus lucius* that compose the Yampa-Green stock of sub-adult and adult (fish  $\geq 250$  mm total length) and live in the mainstream Green River upstream of the White River and its tributaries including the Yampa, White, and Duchesne rivers (Table 1). Abundance estimates of endangered Colorado pikeminnow are needed to better monitor population status and provide benchmarks against which progress toward recovery can be measured. Work started in the spring of 2000 with three different agencies, each responsible for sampling a river and will conclude in 2002. Our primary goal was capture and mark as many Colorado pikeminnow as possible on at least three different sampling occasions on each river. Fish were marked with uniquely numbered tags (PIT tags) that are inserted into the fish's body cavity. The US Fish and Wildlife sampled the White River, Utah Division of Wildlife Resources sampled the Green, Duchesne, and White rivers, and Colorado State University sampled the Yampa River. Each river was sampled in a downstream direction. Sampling occurred during spring runoff and ended before pikeminnow spawning migration. Electrofishing will be the primary sampling gear but was supplemented with trammel and fyke nets. A total of 1151 Colorado pikeminnow captures were recorded, including 386 capture events of fish previously tagged. These data will be evaluated and used to obtain abundance estimates for each river in early 2001.

- IV. Study Schedule:        Initial Year    2000  
                                      Final year    2002
- V. Relationship to RIPRAP (*Version: March 8, 2000*):  
General Recovery Program Support Action Plan:
- V. Monitor populations and habitat and conduct research to support recovery actions (Research, monitoring, and data management).
  - V.A. Measure and document population and habitat parameters to determine status and biological response to recovery actions.
  - V.A.1. Conduct Standardized Monitoring Program.
  - V.A.1.a. Evaluate and refine procedures periodically, as appropriate. (With emphasis on expanding ISMP to monitor response of fish community and endangered fishes to major recovery actions.)
  - V.B. Conduct research to acquire needed life history information.
  - V.B.1. Identify significant deficiencies in life history information and needed research (will come partially from IMOs).
  - V.B.2. Conduct appropriate studies to provide needed life history information.
- VI. Accomplishment of FY 2000 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Task for FY 2000 were:

- Task 1. Literature research, order and prepare equipment.
- Task 2. Scout locations, final equipment preparation.
- Task 3. Intensive sampling in a short reach to evaluate assumptions.
- Task 4. Conduct 3-pass sampling.
- Task 5. Sampling team coordination, data entry, and analysis.
- Task 6. Write Recovery Program annual summary report.

All tasks were met in year 2000. Initial meetings and discussions by agency teams refined the methodology and resulted in a Standard Operating Procedure Manual that was sent to all field personnel (Tasks 1,2 and 5). The Manual provided an overview of the work, the sampling approach, endangered fish handling and tagging procedures and standardized data forms. Periodic updates among crews during the sampling period allowed an adaptive and refined approach to sampling (Task 5). Crews had to conduct reconnaissance of remote river reaches to find boat launch and take-out sites and had to obtain permission to access some sites on private property. In addition, all three crews had to equip and rig new equipment specific for the sampling approach (Task 2). We had originally planned to sample by leap-frogging to concentration habitats and sample only habitats that provided maximum likelihood of capturing Colorado pikeminnow. Task 3 was planned to evaluate this approach by intensively sampling a short reach of river and comparing it to our original plan of sampling only specific concentration habitats like backwaters or eddies. The purpose was to examine whether or not we were adequately sampling all areas. Once sampling started we realized that fish were not concentrated as

we expected. Based on this finding, we modified our sampling approach to sample the entire river, thus negating the need to evaluate sampling only specific habitats (Task 3). At least three sampling passes were completed for each river as planned (Task 4). We need to further evaluate the usefulness of captures from the fourth pass. Sampling on the Green River during the fourth pass in early June probably occurred when Colorado pikeminnow were starting their spawning migration based declining capture rates and sexual condition of fish captured. Sampling on the Yampa River during the fourth pass in mid to late June apparently occurred when most Colorado pikeminnow had moved downstream to the spawning area in un-sampled Yampa Canyon. We will evaluate the usefulness of each fourth pass prior to calculating the annual abundance estimate.

Sampling occurred mid-April through mid-June. Effort and results are reported in Table 1. Electrofishing effort included 177 hours on the Green River, 127 hours on the White River, and 61 hours on the Yampa River. Electrofishing effort was greater on the Green and White rivers because two boats were used, one sampling each side of the river, while on the Yampa River only one electrofishing boat was used. However, sampling on the Yampa River included substantially more fyke and trammel net samples of backwaters and flooded tributaries (Table 1). Total Colorado pikeminnow captured in all passes were 738 from the Green River, 320 from the White River, and 93 from the Yampa River. Also captured were 33 razorback sucker from the Green River and 13 razorback sucker from the Duchesne River. Recaptures of Colorado pikeminnow from the Green, White, and Yampa were 254, 91, and 41 respectively. Recaptures reported here and in Table 1 include fish captured during the same sampling pass, fish captured during previous passes, and fish captured in previous years. Abundance estimates will be based only on recaptured fish that were marked during previous sampling passes. An abundance estimate for year 2000 data will be calculated in early 2001 after the data are evaluated for accuracy and validity by investigators.

VII. Recommendations:

Adaptive changes were made to increase the efficiency and capture rates of Colorado pikeminnow in 2000. These methods will be documented in the Standard Operating Procedure Manual for 2001.

VIII. Project Status:

This project will continue in 2001 and should be considered "*On Track and On-going*".

IX. FY 2000 Budget Status

- A. Funds Provided: \$165,000
- B. Funds Expended: All funds expended.
- C. Difference: \$0.0
- D. Percent of the FY 2000 work completed, and projected costs to complete: 100%
- E. Recovery Program funds spent for publication charges: None

X. Status of Data Submission (Where applicable):

PIT Tag data files will be submitted by individual agencies (USFWS, UDRW, and CSU) by January 2001.

XI. Signed: John Hawkins 12-7-2000  
Reporting Principal Investigator Date

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Attachment: Table 1.

Table 1. Sampling dates and effort middle Green/ Yampa population of Colorado pikeminnow. These data are preliminary and subject to change.

	Dates	Days Sampled	River Miles Sampled	Number of unique samples			Electrofishing Effort (hours)	Number of Pikeminnow Captured	Number of Pikeminnow Recaptured <sup>1</sup>
				Trammel /Electro- fishing	Fyke Nets	Electro- fishing			
Green River									
Trip 1	April 11 - 27	10	332-256	4		10	42	176	45
Trip 2 (ISMP)	May 2 - 9	4	334-245			28	39	196	58
Trip 3	May 18- June 1	8	334-245	4		14	53	264	97
Trip 4	June 6- 16	7	334-246	1		12	43	102	54
Totals		29 days		9		64	177 hours	738	254
Yampa River									
Trip 1	April 18- 27	8	119-49	37		21	13	14	6
Trip 2	May 6- 14	9	119-49	14	12	23	15	23	8
Trip 3	May 22- June 1	11	119-49	30	18	18	18	48	24
Trip 4	June 20- 24	4	119-51		2	5	15	8	3
Totals		32 days		81	32	67	61 hours	93	41
White River									
Trip 1	April 18-28	5	101-24			18	50	61	10
Trip 1 (ISMP)	May 10	1	24-0			8	12	50	14
Trip 2	May 10-25	7	101-0			15	Not Available	92	21
Trip 3 (ISMP)	May 25-25	2	104-95			4	6	32	11
Trip 3	May 31 - June 9	7	91-0			11	58	85	35
Totals		22 days				56	127 hours	320	91

<sup>1</sup> Recaptured fish include those previously tagged at any time in the past including days earlier, on previous trips, or previous years.